pitcher needs .40 seconds to react and defend his position at 52-53 feet from the bat-ball impact point. (Exhibit 20)

NCAA Research Program on Bat and Ball Performance, presented by Dr. Joseph J. "Trey" Crisco, III. Dr. Crisco stated that the acceptable level of risk is the major issue in regulating bat performance, and that the specifics of a standard test methodology are secondary. He noted that extensive data from studies on impact injuries to a wide range of tissue (e.g., muscle, bone, brain), and on the reaction times of subjects, clearly indicate that increases in impact velocity would increase the severity and the frequency of injury. He found that bat speed was shown to have a stronger correlation with bat moment of inertia than bat weight, which suggests it would be more effective to regulate weight distribution (balance point) than overall bat weight. (Exhibit 10)

1999 Aluminum vs. Wood Bat Performance Study, presented by Coach Bill Thurston, Amherst College. Coach Thurston followed 96 Division I baseball players and tracked their statistics using the 1999 aluminum bat (2 5/8-inch diameter, minus-3 length-to-weight unit differential) in the spring college season, and a wood bat during competition in the Cape Cod Summer League. The 96 hitters averaged .334 with the metal bat and .248 with wood, a difference of .086. The difference in 1998 and 1997 was .082 and .107, respectively. While 79 percent of the hitters hit over .300 with metal, only 8 percent hit over .300 with wood. (Exhibit 34)

Wood vs. Aluminum Study, presented by the Central Illinois Collegiate League. The CICL, which is a collegiate summer league that uses wood bats, compared the statistics for the last three years it used metal bats (1987-89) with the most recent nine seasons using wood bats. The league has witnessed a 25 percent drop in scoring; a 60 percent drop in home runs per game; a 10 percent drop in batting average; and a game time that has decreased by 35 minutes. (Exhibit 35)

Division I and College World Series Statistical Trends, presented by the NCAA. The NCAA has tracked statistical trends at the Division I level since 1970. In 1973, the last